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**Marine Casualty
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**Enquêtes sur les
accidents maritimes**

**Investigation
Report
to the Minister
pursuant
to sections
542 or 545
of the
Canada
Shipping Act**

**Rapport
d'investigation
au Ministre
conformément
aux articles 542
ou 545 de la Loi
sur la marine
marchande
du Canada**

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INVESTIGATION REPORT INTO THE
CIRCUMSTANCES CONCERNING THE GROUNDING
OF THE LIBERIAN VESSEL "MYRSINIDI"
AT THE ENTRANCE TO PORT HARMON,
STEPHENVILLE, NEWFOUNDLAND ON
MARCH 16, 1986.

REPORT No. 451

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INVESTIGATION REPORT INTO THE CIRCUMSTANCES CONCERNING THE
GROUNDING OF THE LIBERIAN VESSEL "MYRSINIDI" AT THE
ENTRANCE TO PORT HARMON, STEPHENVILLE, NEWFOUNDLAND ON
MARCH 16, 1986.

Particulars of Vessel

Name	"MYRSINIDI"
Official Number	7802
Port of Registry	Monrovia, Liberia
Call Sign	ELEV3
Gross Tonnage	5,511
Net Tonnage	3,472
Length BP	114.2 m
Breadth	17.6 m
Depth	9.9 m
Draught (at time of incident)	F. 3.65 m A. 5.18 m
Type of Vessel	General Cargo
Built	1977
Propulsion	MAN Diesel Engine, 5,325 BHP, Single Screw, Speed 15 knots
Complement	21
Cargo	Nil
Ballast	1,886 t
Classification	American Bureau of Shipping
Owners	Myrsinidi Corporation Monrovia, Liberia
Local Agents	Montreal Shipping Stephenville, Newfoundland

Navigating Equipment

Radar (A)	3 cm Decca RM 1226
Radar (B)	3 cm Decca RM 1226 Gyro Stabilized
Direction Finder	ITT Marine
Autopilot	VEB Schiffselektronik
VHF (2)	NERA
Echo Sounder	ELAC
Loran C	Furuno LC 200
Gyro Compass	Anschutz
Chart in Use	CHS #4647 - Port Harmon and Approaches

NOTE: All times mentioned in this report are Newfoundland Standard Time (UTC minus 3½ hours).

Background

The "MYRSINIDI" is a two-hold, ice-strengthened, geared general cargo vessel with a bulbous bow. Her superstructure, bridge and engine-room are located aft. She is on a regular run to Stephenville, Newfoundland, and at approximately 1830 on March 16, 1986, she arrived, in ballast, off the entrance to Stephenville Harbour. Weather conditions were generally good. The pilot embarked at the boarding station, took the conduct of the vessel, and while navigating through ice the "MYRSINIDI" ran aground about 80 m off the outer end of the breakwater at approximately 1945. After pumping out three double bottom tanks and two forepeak tanks the vessel was refloated at 2145 and proceeded to her berth. Temporary repairs were carried out to No. 5 heavy oil fuel tank and the vessel left Stephenville in ballast on March 29, 1986 for permanent repairs at Halifax Shipyard. There were no injuries and apparently no pollution as a result of this incident.

Narrative

The Liberian general cargo vessel "MYRSINIDI" left Puerto Limon, Costa Rica, in ballast on March 7, 1986, bound for her loading port of Stephenville, Newfoundland. In addition to the consumables required for the voyage, the

vessel carried 1,886 t of water ballast in topside tanks Nos. 9, 10, 11, 12; double bottom tanks 1, 2, 3, 4, 5, and 6; deep tank 4.8 and forepeak 4.0.

An uneventful passage was made to the Stephenville pilot station with the vessel arriving there at 1830 on March 16, 1986. The workboat "INDIAN HEAD" delivered the pilot to the "MYRSINIDI" at 1935. The pilot agreed that the "INDIAN HEAD" would remain astern of the "MYRSINIDI" while inbound in the channel. Communication between the workboat and the pilot was on VHF radio channel 14.

Upon the pilot's arrival on the bridge, the engine had been stopped and the vessel was in a position about 0.75 miles SW of the outer end of the breakwater. The ship's head was about 090° T&G. The harbour range light heading is 024°(T), meaning that a course alteration to port was required to line the vessel up with the leading lights. The pilot ordered the engine Dead Slow Ahead and, at the same time, ordered several gradual course alterations to port while the vessel was steaming towards the entrance of the channel. The port searchlight was switched on so the pilot could observe the breakwater.

The vessel was equipped with 2 relative motion Decca radars, however, the port radar, with a ship's-head-up display, was the only one in operation. The range was initially set at 1.5 miles then reduced to 0.75 miles. The radar display was showing two tracks in the ice and there was also extensive clutter due to the presence of the ice and the range used. The pilot was relying on visual navigation most of the time and had checked the radar occasionally.

Prior to and at the time of grounding, it was a clear, dark night, with good visibility, a light NE wind and open pack first-year ice with loose pans. Ice was rafted heavily at the outer end of the breakwater with some concentration of loose pans east of the entrance to the channel. Earlier the same day the Canadian Coast Guard icebreaker "SIR WILLIAM ALEXANDER" had been in the harbour breaking ice and had opened a track in the channel.

Moments prior to the grounding the pilot was standing on the port side of the wheelhouse while the master was observing the radar. The second mate was on 'stand by' at the engine telegraph as well as keeping a close watch on the helmsman as he repeated and followed the pilot's helm orders.

Suddenly a heavy vibration was noticed and the "MYRSINIDI" was grounded in position Latitude 48°30'24"N., Longitude 58°32'34"W., about 80 m off the outer end of the

Stephenville breakwater at 1945. At the time the vessel was on a steady heading of 038°(T&G) and her speed was about 3 knots. In an effort to refloat the vessel the engine was ordered Full Astern with maximum power until 2004 at which time the astern power was reduced and at 2106 the engine was stopped. All bilges and tanks were sounded and apparently no pollutant had been released. In the meantime the pilot had informed Stephenville Coast Guard Radio of the grounding.

To assist in refloating the vessel, ballast was pumped out of double bottom tanks 4.9, 4.10, 4.8 (deep tank) and the forepeak tanks (4.01 and 4.02).

At 2145 the engine was put on Dead Slow Astern and the "MYRSINIDI" was refloated, and the vessel then proceeded to her berth. Several manoeuvres were required to break the fast ice around the dock with the assistance of the harbour work boat "INDIAN HEAD" and the vessel was safely secured port side to the wharf at 0210 on March 17, 1986.

An underwater inspection was carried out by divers and a hole was found in No. 5 heavy fuel oil tank. Soundings on board the vessel revealed that double-bottom tanks 4.1 and 4.4 were also damaged. Two additional cracks were found in the hull, one on the starboard side 0.9 m - 1.2 m in from the turn of bilge and 15 m from the bow and the other on the port side inboard from the turn of bilge. The hole in No. 5 tank was temporarily cemented by the divers and there was no apparent pollution. Certificates of Seaworthiness were issued by the American Bureau of Shipping and the Canadian Coast Guard.

The vessel departed Stephenville on March 29, 1986, in ballast bound for Halifax arriving there on March 31, 1986. The vessel was drydocked at Halifax Shipyard where permanent repairs were carried out.

Analysis

1. Hull Damage

The following damage was found while the vessel was at Halifax Drydock:

a. Starboard Side

- i. Shell plate B13 heavily set up and ruptured over 1.52 m in length between frames 135½ and 125½.

- ii. Shell plates B12, B11, C13, and D13 between frames 125½ and 110½ had some indentation.

b. Port Side

- i. Shell plate A14 heavily set up and ruptured at after end between frames 132½ and 125½. Shell plate A13 was ruptured between frames 125½ and 119½.
- ii. Shell plates B11, B10, B9, B8, B7 between frames 115½ and 70½ were heavily set up and holed. B12 set up between frames 115½ and 118½.
- iii. Shell plates A11, A10, A9 were set up and scored between frames 99½ and 82½.
- iv. Shell plates C13, C12, C11, C10, C9 had some indentation between frames 83½ and 125½ including a hole at C12 between frames 115½ and 111½. Shell plate D10 lightly set up at lower half forward end between frames 95½ and 92½.

2. Risk of Pollution

The "MYRSINIDI" arrived at the Port Harmon pilot station with 429.6 t of heavy fuel oil and 63.6 t of diesel on board. The only fuel oil tank holed was No. 5.0 which contained about 5-6 t of heavy fuel at the time of the grounding. There was no apparent pollution from this compartment, probably because of the congealed state of the oil caused by the low temperatures prevailing at the time.

3. Navigation Equipment

The "MYRSINIDI" was equipped with two Decca radars, however, only one was in operation at the time of grounding and there was extensive clutter on the display due to the short range scale in use and the ice in the vicinity. The gyro compass had no error. The echo sounder was not in use at the time. Canadian Chart No. 4647, Port Harmon and Approaches, Edition 52, December 26, 1980 was being used and publications aboard included the US Sailing Directions and Tide Tables dated 1986 and the UK Admiralty List of Lights dated 1985.

4. Aids to Navigation

The only navigation aid available at night, during winter months, at Stephenville Harbour is a set of range lights situated behind the wharf. The range line bearing is 024°(T) and leads through the channel which has a width of 46m and a length of 400 m. There were spar buoys in the channel for the winter season. However, some were reported off position as follows: buoys XS7, XS2, and XS1, and Notships were in effect. The pilot was familiar with the Notships. In addition to the above, the two lights on the breakwater, LL 180.1 and 180.3, had been out of service since 1981 and 1982 because of damage to the breakwater. There are two Notices to Mariners in effect; No. 136(T)81 and 142(T)82. Both the pilot and master were familiar with these particular Notices to Mariners.

The Canadian Coast Guard Newfoundland List of Lights, Buoys and Fog Signals, 1986, cautions mariners in the use of aids to navigation. It indicates, amongst other things, that mariners should not rely solely on buoys and that they should only be considered as warning markers. Positions of buoys in the vicinity of moving ice cannot be guaranteed and mariners should proceed with extreme caution under these circumstances. Other factors, such as sea-bed conditions, tides, currents and sea conditions and mooring chain lengths may also affect a buoy's location.

The Newfoundland Sailing Directions, 1983, states, in part, the following, under the heading of Approaches to Port Harmon, ... 'Extreme caution must be observed in navigating the entrance channel... '.

The port usually has to be kept open during the winter months with the assistance of the Canadian Coast Guard icebreakers and this was the case on this occasion.

5. Approach to Port Harmon

Neither the pilot nor the master realized that the vessel was standing into danger at the time of grounding. The helmsman was on a steady heading of 038°Gyro and the engine was on Dead Slow Ahead. The vessel was steaming for only 10 minutes after the pilot boarded and was at no time lined up on the ranges prior to her grounding. There was reportedly no misunderstanding between the pilot and the ship's personnel prior to the grounding.

Shoal water extends south-eastward into the channel from the outer end of the breakwater and close to the line of the ranges (see chartlet) and with buoy XS 1 reported out of position, special care would have been required in the initial channel approach.

6. Visibility and Ice Conditions

The visibility within Stephenville Harbour was reported to be good with the range lights being observed clearly. Darkness in the area was most acute and the breakwater could not be seen with the naked eye during the hours of darkness. A heavy concentration of ice was reported at the outer end and to the east of the breakwater. The radar display was showing two open tracks in the ice and extensive clutter. The "MYRSINIDI" ran aground at 1945 and low water was at 1957 at a height of 0.457 m above chart datum.

7. Machinery and Electrical Malfunction

There was no malfunction reported with either the main engine or the steering gear and no traffic was reported in the immediate vicinity of the vessel.

8. Duties and Obligations of Pilot and Crew

The Recommended Code of Nautical Procedures and Practices to be followed by persons on board ship in order to ensure safety and pollution prevention, Part 1, Section 10, Navigation with pilot embarked; states:

Despite the duties and obligations of a pilot, his presence on board does not relieve the master or officer in charge of the watch from their duties and obligations for the safety of the ship. The master and the pilot shall exchange information regarding navigation procedures, local conditions and the ship's characteristics. The master and officer of the watch shall co-operate closely with the pilot and maintain an accurate check of the ship's position and movement.

9. Crew and Pilot's Qualifications

- a. The master of the "MYRSINIDI" holds a Greek First

Class Master certificate issued in 1977, and a valid Liberian licence as Master, Ocean Going Vessels of any Gross Tonnage. He has a total of about 22 years sea service including 8 years as master, mostly aboard the "MYRSINIDI". He has sailed the vessel into Stephenville about 15 times.

- b. The second mate holds a Greek Second Officer Ocean Going certificate issued in 1983. He has been at sea for 3 years and has sailed as second officer for 2 years. He attended the Merchant Marine Academy in Greece for 2 years.
- c. The pilot holds a Canadian Master Home Trade certificate of competency issued in 1975, a Pilot Licence Class A for Humber Arm/Stephenville Newfoundland, and Class B for Saint John, N.B., issued by the Atlantic Pilotage Authority. He has two years experience as pilot in Saint John, N.B. and was transferred to Corner Brook, Newfoundland on September 30, 1985. He spent 30 days training with a senior pilot between the port of Corner Brook and Stephenville. During that time he made 4-5 trips to Stephenville and 20 trips to Corner Brook. He also made 7-8 trips to Stephenville on his own, including 3 trips in the winter during daylight hours only. This was his fourth trip and his first at night. He went to sea in 1960. He sailed as an officer on coastal vessels for 4 years and has 5 years experience as master of the pilot boat in Saint John, N.B.

Findings

Whilst under the conduct of a pilot the "MYRSINIDI" ran aground at the entrance to Stephenville harbour and sustained considerable bottom damage.

It would appear that the grounding was a result of an error in navigation, the following being contributing factors:

- failure to ensure that the vessel was lined up on the ranges well before the approaches to the channel entrance, this being particularly important due to the adverse local circumstances;
- adverse local circumstances, which were - the breakwater lights not functioning, buoys reportedly out of position, ice conditions, shoal water at the channel entrance and darkness;

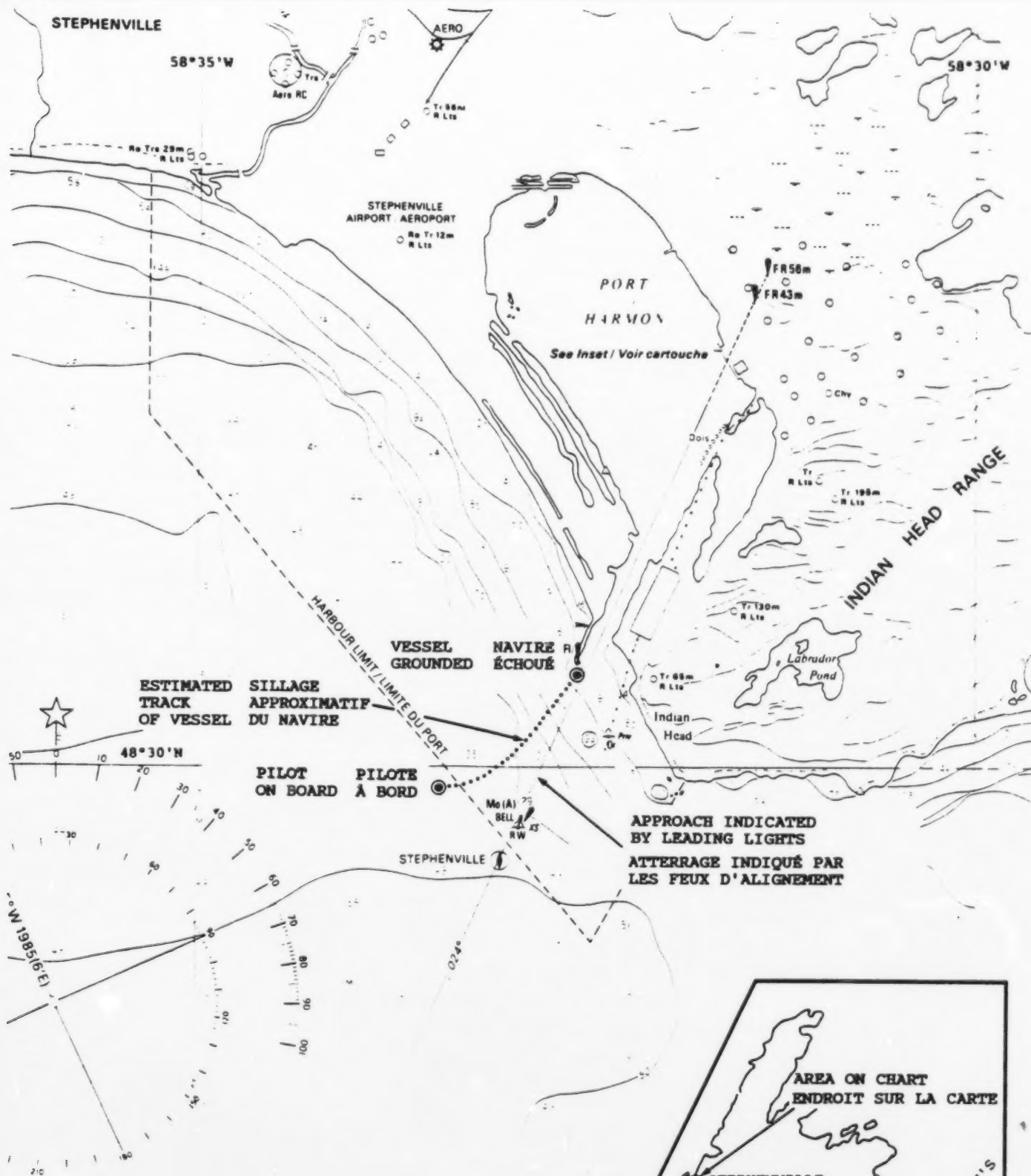
- the pilot had limited experience of the area;
- failure by the ship's officers to determine the current status of the navigational aids ashore and afloat;
- failure to make more efficient use of the wheel-house navigational aids, particularly the radars and echo sounder, to establish the vessel's position prior to entering the channel; and
- failure by the ship's personnel to closely monitor the progress of the vessel whilst under the conduct of the pilot.

Other Findings

It is possible that a certain degree of reliance was being placed on tracks, visible on the radar, made through the ice earlier in the day which may have been displaced due to ice movement.

Rafted ice at the outer end of the breakwater may have caused some confusion as to the outer limit of the breakwater as observed on the radar, but such an error should have put the vessel further into the channel.

OTTAWA, ONTARIO
NOVEMBER, 1986.



"MYRSINIDI"

REDUCED SECTION
OF CHS CHART
No. 4885

DEPTHS IN METRES

SECTION RÉDUITE
DE LA CARTE N° 4885
DU SHC

PROFONDEURS EN MÈTRES

